IDAHO
DEPARTMENT OF FISH GAME

Jerry M. Conley, Director

Mackay Hatchery

Annual Report

October 1, 1979 - September 30, 1980

by

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Mackay Hatchery

ABSTRACT

This was the first year of trout production after being on a salmon smolt production for 4 years.. We did have some disease problems that apparently wasn't here prior to the salmon production and catchable rainbow transfers from Hagerman.

Eggs received during the year came to 3,140,474. This included 6 species of trout and coho. The total number of fish released to streams, lakes and reservoirs in Region 6 was 1,825,060 fish, that weighed 89,686 pounds. The number of fish transferred to other stations was 325,917, that weighed 6,390 pounds.

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OBJECTIFIES

The objectives of the Mackay Hatchery are to:

1. Raise 105,000 pounds of rainbow catchables and fingerling rainbow, coho, mackinaw, cutthroat, steelhead x cutthroat hybrids, and California golden for release into streams, lakes and reservoirs in Region 6.

2. Release catchable size (8-10 inch) hatchery fish in 36 streams and 17 lakes and reservoirs. Waters normally stocked as called for in catalog are: Birch Creek, Little Lost River, Wet Creek, Big Creek, Big Springs Creek, Sawmill Canyon, Big Lost River, North Fork Big Lost River, Pass Creek, Antelope Creek, Cherry Creek, Spring Creek, Bear Creek, Iron Bogg Creek, Parsons Creek, Warm Springs Creek, East Fork Big Lost River, West Fork Big Lost River, Wildhorse Creek, Fall Creek, Lake Creek, Muldoon Canyon, Cabin Creek, Summit Creek, Kane Creek, Salmon River, Panther Creek, Indian Creek, North Fork Salmon River, Anderson Pond, Hawley Creek, Morse Creek, Morgan Creek, Gini and Chivers Slough, Squaw Creek, Stanley Lake Creek, Mackay Reservoir, Josephus Lake #1 and #2, Capehorn Lakes #1 and #2, Mosquito Flat Reservoir, Iron Lake, Wallace Lake, Bayhorse Lake #1, Gates Creek Lake, Big Bull Trout Lake, Martin Lake, Rams Horn Reservoir, Haines Creek Reservoir, Yellowjacket Lake, and Meadow Lake.

3. Release 50,000 fingerling rainbow, cutthroat and California golden fry into 90 mountain lakes each year by helicopter or horseback. Plant 160,000 fingerlings into lakes and reservoirs by truck. These fish are planted into Regions 3, 4 and 6.

INTRODUCTION

The Mackay Hatchery is located 10 miles west, on highway 95, then 6 miles southwest of Mackay. The water source is from Warm Springs and is used for domestic and fish propagation. The temperature is a constant 52 degrees F. The flow varies from 16 cfs in late winter and spring to a high of 26 cfs in summer and fall.

The water is collected **in** a head pond and supplied to the large raceways through a 30 inch steel pipeline. These raceways measure 400 feet x 8 feet x 32 inches with a volume of 8,533 cubic feet each.

The hatchery building, small raceways and domestic water are on a separate spring. The pipeline sizes to the small raceways and hatchery building are 14 inches and 12 inches respectively.

The size of the 8 small raceways is 100 feet x 3 feet x 2 feet giving a volume of 600 cubic feet. The hatchery has 10 (16 tray) stacks of heath incubators and 30 fiberglass start tanks 14.5 feet x 21 inches x 9.5 inches, with a water volume of 20 cubic feet each.

The head pond contains algae and water cress (by the tons) and is cleaned twice a year. The quality of the spring is good except for its low dissolved oxygen level, 4.6 PPM. The elevation of the hatchery is 6,280 feet. The hatchery is capable of rearing 130,000 pounds of fish as presently designed.

FISH PRODUCTION

Number of fish produced was 2,150,977 and the weight was 96,075 pounds.

Number and pounds of fish planted by species and size group.

Rainbow (3-6 inches)	523,962	8,273 pounds
(6+ inches)	226,555	71,960 pounds
Cutthroat (0-3 inches)	432,362	2,117.5 pounds
Brook(0-3 inches)	8,061	229 pounds
Coho (0-3 inches)	541,750	8,750 pounds
Mackinaw(0-3 inches)	2,560	16 pounds
Steelhead x CT(0-3 inches)	32,320	158.5 poun
Cutthroat hybrids	57,490	87.5 pounds

Fish on hand start of fish year.

Rainbow	640,892	6,259 pounds

Fish on hand end of fish year.

Rainbow (0-3 inches)	285,580	1,814 pounds
(3-6 inches)	22,050	1,250 pounds
(6 + inches)	31,760	5,293 pounds
Cutthroat x hybrids (0-3 inches)	4,906	23.25 pounds

Eggs received during the year.

Rainbow	54,108		Caribou
	503,608		Hayspur
	311,448		Mt. Whitney
Total	869,164	% loss to release	49%
Brook	73,432		Mackay
	28,564		Cornell
Total	101,996	% loss to release	92%
Coho	812,600		Oregon
		% loss to release	33%
Mackinaw	145,464		Wyoming
		% loss to release	98%
Cutthroat	899,650		Henrys Lake
	66,880		Henrys Lake
Total	966,530	% loss to release	55%
Steelhead x CT	36,640		Henrys Lake
		% loss to release	63%
Cutthroat hybrid	36,480		Henrys Lake
	121,600		Henrys Lake
Total	158,080	% loss to release	61%

FISH HEALTH

Heavy losses occurred on eggs and sac fry during incubation on the Eastern brook eggs taken at Mackay, 80% loss to swim-up. During the 6th week in the incubator most of the losses appeared in each spawn take. There were considerable numbers of pin heads in swim-up fry after they started feeding.

The mackinaw eggs were about 50% hatched on arrival and most of them died within a week.

The mortality in coho was 33% to release time. Most of the loss time came in the incubators, mostly due to air bubbles under egg trays, and coagulated egg sac. Most of the coho had a small portion of coagulated yolk that was not absorbed.

The cutthroat mortality was 55% and was due to soft shell. Losses occurred until they were feeding well. The hybrids were about the same. Steelhead x cutthroat mortality was 63% until the time they were planted. The cutthroat hybrids experienced about the same mortality, with 61% loss.

Rainbow mortalities were 49% through planting. There was about 15% loss on all the eggs in the heath incubators. This was due to air bubbles building up under trays and suffocating the fish. The losses always occur after the eggs have hatched. One pond of rainbow fingerlings had high mortalities due to Costia. The fish were treated with Purina 4X for bacterial gill disease first and then treated for Costia with Formalin for 3 days and treated once a week after that until planted. They were also fed medicated feed in the diet.

FISH TRANSFERS

One lot of 65,040 rainbow fingerlings was transferred from McCall to Mackay for mountain lakes plants and holdovers. There were 197,917 rainbow fingerlings transferred to American Falls from Mackay during the fall of 1979. The Summer chinook were transferred back to McCall in the fall of 1979.

SPAWNTAKING OPERATIONS

The weather stopped us from getting into Nez Perce Lake the fall of 1977 with 2,000 California goldens, so it was decided to hold them for broodstock. In the spring of 1980, they were 3 years old. The following two years we received goldens from Wyoming and we saved 1,000 fish out of each lot for broodstock. Most of the nice big females did not have any eggs. The eggs we did take were not good and the males were sterile. These fish have been plagued with Gyrodactylus, and we had to treat them weekly with Formalin. During spawning we could not control the fungus or Gyrodactylus, and we lost most of the three year olds.

We had about 100 brook that we held for broodstock and took eggs from them during October and November. The fish were 2 years old. The eggs looked real good until the 6th week in incubation, then most of sac fry died. This took place in each egg take during the 6th week of incubation.

FISH FEED UTILIZED

Pounds of fish produced.	96,075.5
Pounds of fish feed used.	161,330
Pounds fish feed per pound of fish produced.	1.68
Fish feed cost per pound of fish produced.	$ .32

RANGENS

Starter	150 pounds	$ 37.64
#1	750	190.46
#2	2,500	650.59
#3	4,900	1,257.14
#4	50	9.75
Fine Crumbles	17,950	3,439.12
Coarse Crumbles	21,300	4,160.56
4/32 pellet	10,000	1,785.01
Total	57,600 pounds	$11,530.27

CLEAR SPRINGS

#1	150 pounds	$ 37.04
#2	350	86.43
#3	1,250	308.62
#4	5,200	1,065.87
#5	1,650	306.24
3/32	900	167.04
5/32	90,200	16,109.72
brood	1,550	324.48
Terramycin	1,000	317.51
Total	102,250 pounds	$18,722.95
OMP	1,480	470.64
Total	161,330 pounds	$30,543.86

HATCHERY IMPROVEMENTS

The hatchery crew built 30 demand feeders and started experimenting with them. They worked well on fish 250 per pound outside, but the fish wouldn't use them in the start tanks in the hatchery building. The coho did well on them in the outside small raceways. They were considerably bigger than the ones we had hand fed.

A broodstock pond was built by a crew of YACCs from the Bedstead Work Center. The pond size measured 100 x 10 x 3 feet with a divider in the middle. The crew spent about 10 weeks on the project. We hoped the California golden would do better in this pond, but there were still fungus and parasite problems.

SPECIAL STUDIES

Coho for Cascade Reservoir were color marked with a fluorescent grit prior to release to Cascade Reservoir. The process caused very little mortality. The fish were treated with Diquat 2 times to hold down disease. The fish were checked with a black light 2 weeks later and showed good color retention.

MISCELLANEOUS ACTIVITIES

One presentation was given to the Arco Rotary Club on the Mackay Fish Hatchery operation.